

4.5 – Graphing Rational Functions

Name _____ Date _____ Period _____

Graph each rational function without technology and determine the domain, asymptotes, intercepts and holes (if any).

1. $f(x) = \frac{3}{x+7}$

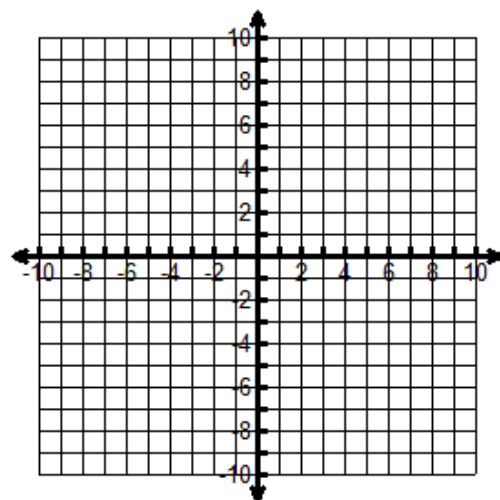
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



2. $f(x) = \frac{x-5}{x^2-16}$

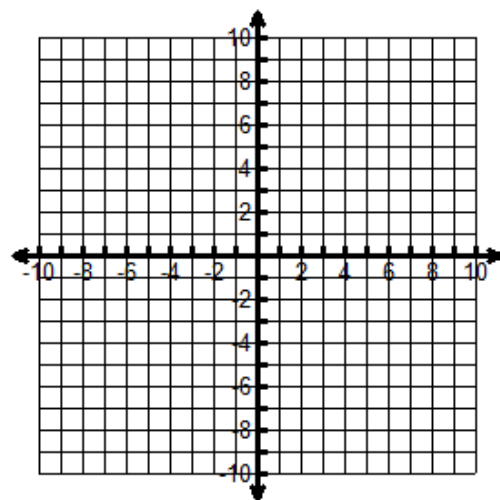
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



3. $f(x) = \frac{-4x+1}{x-2}$

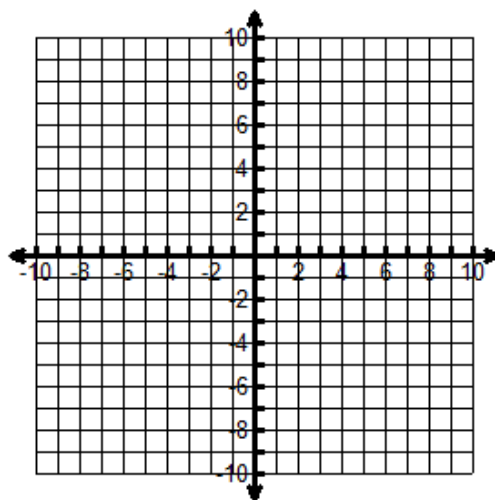
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



4. $f(x) = \frac{2x^2-9x+4}{x^2-7x+10}$

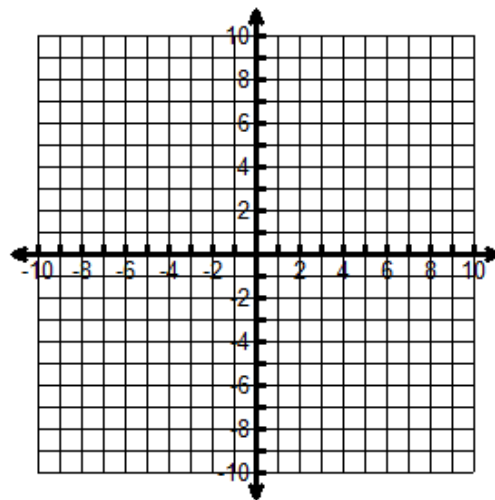
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



5. $f(x) = \frac{x^2+x-42}{x-4}$

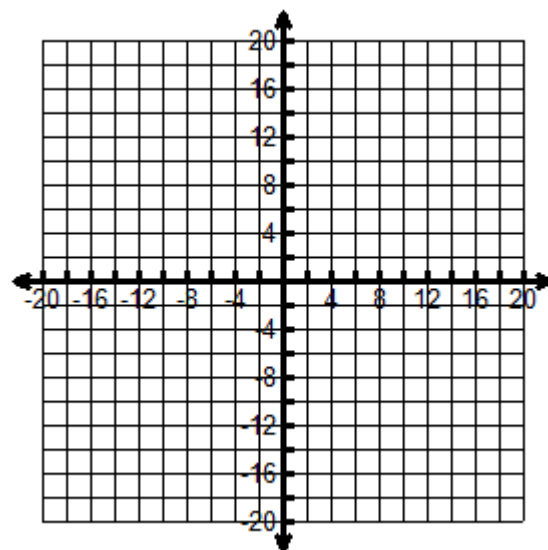
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



6. $f(x) = \frac{x^2+x-30}{3x^2-12}$

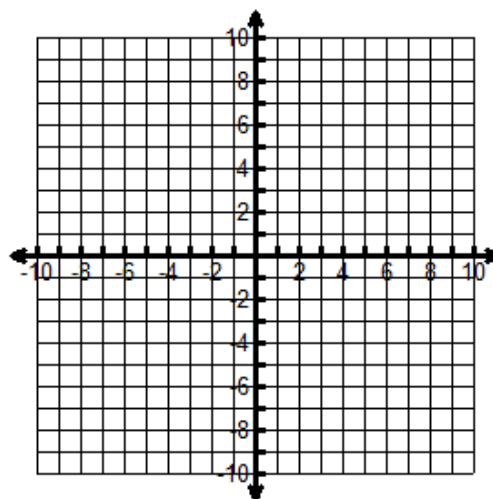
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



7. $f(x) = \frac{x-2}{x+1}$

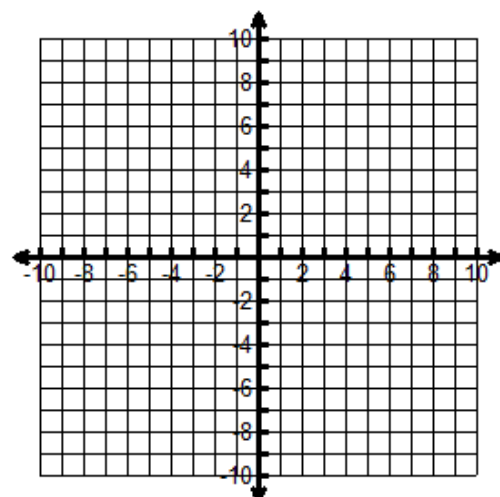
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



8. $f(x) = \frac{x+4}{x^2-2x-24}$

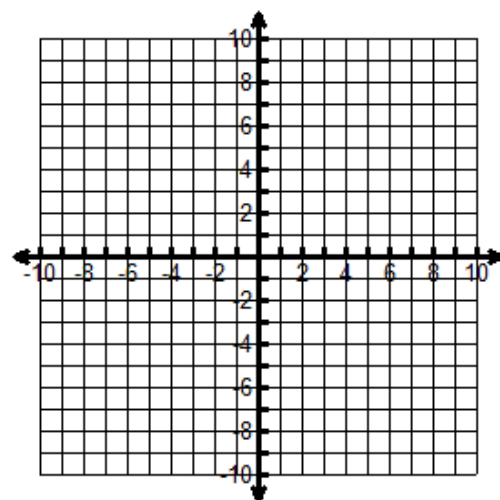
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



9. $f(x) = \frac{3x^2 - x}{x+1}$

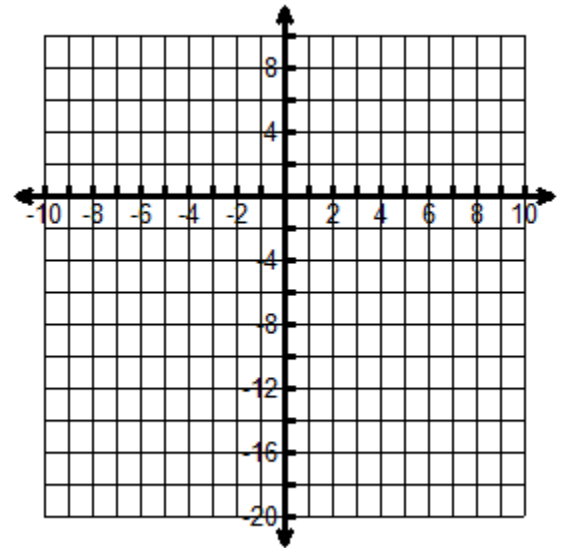
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



10. $f(x) = \frac{x-7}{x^2-4x-21}$

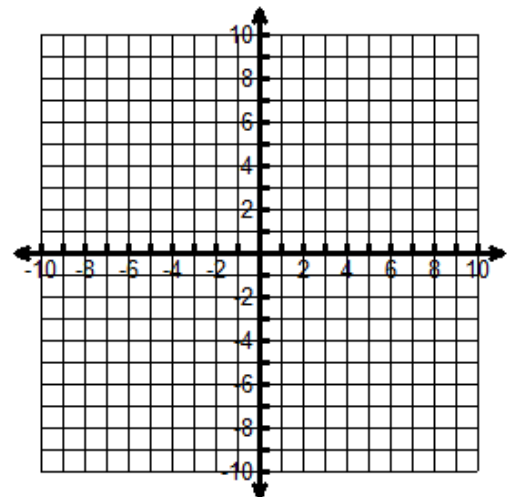
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



11. $f(x) = \frac{x+2}{x^2-x-6}$

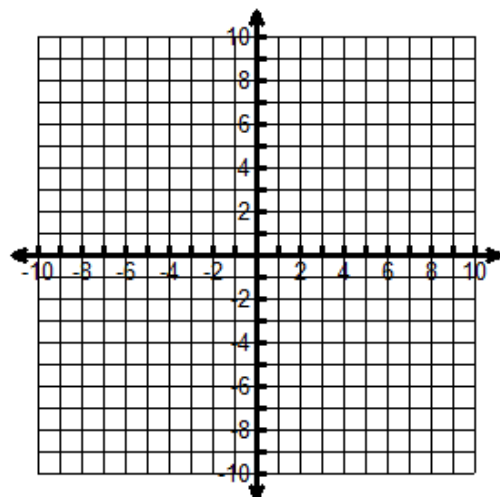
Domain _____

vertical asymptotes _____

horizontal or oblique asymptote _____

x-intercepts _____

y-intercept _____ hole _____



Review Problems

Solve the following equations:

12. $\frac{x}{x+1} + \frac{5}{x} = \frac{1}{x^2+x}$

13. $\frac{3}{x^2-6x+9} + \frac{x-2}{3x-9} = \frac{x}{2x-6}$

14. $\frac{x-2}{x-4} = \frac{2}{x-4}$

15. $\frac{x^2-1}{x+2} = \frac{3}{x+2}$